> different states of fever, or so many species of one genus. He infers all this from many circumstances & elucidates the Whole by analogical Reasoning for which you know he is remarkably famous. The more you ponder on this the more I think you will find it to savour of reality & of the Simplicity of Nature.[71]

Rush tested his new system during the yellow fever epidemic of 1793 and was, he claimed, satisfied with its success. His medical opponents, on the other hand, were not, and observed that those of his patients who survived the ravages of fever, also miraculously survived, in some cases, the removal of four-fifths of all the blood in their bodies.[72] Rush wrote a famous account of the epidemic but did not, as he had been trained to do, keep an exact record of his own cases.[73]

According to Rush, physiological theory dealt with the mind under the heading of the external and internal senses. He posited nine mental faculties (or capacities) which he divided into three categories. In the first group was the moral faculty, comprised of the conscience and the sense of deity; in the second, the intellectual faculties which included the understanding, memory and the imagination; and in the third group, the passions, the will, and the sense of faith (or believing faculty).[74] Rush claimed that:

> all these internal senses are in every respect like the external senses in their origin and offices. They are all as torpid at birth as the eyes and the ears. They are all awakened by impressions, and their operations ... are as much the effects of specific motions, as the operations of the senses of touch, taste, smelling, seeing and hearing.[75]

Carlson explains that Rush's belief that each faculty was represented by a separate area in the brain was shared by the popular nineteenth-century movement commonly known as phrenology. This was, however, a term which Rush himself appears to have coined in order to describe his physiological psychology.[76]

Since physiology traditionally dealt with the functioning of living matter and consequently was not concerned with metaphysical abstractions, it did not have a developed terminology for analysing concepts such as 'life', 'soul', 'spirit' and 'mind', apart from their connection to real or hypothetical entities.[77] Rush, like many of his contemporaries, was, however, well aware that the problem of metaphysics posed difficulties, linguistic as well as religious, for the scientific study of the human mind. As he explained to his students,

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> Chemistry has been adulterated by its mixture with alchemy, astronomy has been adulterated by its mixture with astrology and religion has suffered from its mixture with mysticism, and phrenology has shared the same fate from its union with all the trash known by the name of metaphysicks. In imitation of the illustrious reformers who have separated the above sciences from their unnatural mixtures, I shall endeavor to separate phrenology, from all the Scholastic and unintelligible jargon of metaphysicks.[78]

William Cullen too had distinguished between the various meanings of the term 'metaphysics'. He wished above all to avoid the connotation of 'subtle disquisitions' and all that this entailed. For Cullen, metaphysics was, rather, an account of 'the Operations of the human mind in thinking' or 'a history' of the human mind,[79] and it is this Baconian-inspired view to which Rush referred when he spoke of his own science of 'phrenology'. He explained that

> From the science to which I have given that simple name, I reject the metaphysical ontology of the Schools, which has for its objects the properties of Spirit, or Being, in general, and shall confine myself exclusively to the history of the human mind.[80]

At the beginning of his lectures on the mind Rush defended his inclusion of the history of the human mind in a course of physiology. It was, he explained, not a novel idea but one which had previously been adopted by Boerhaave, Haller and John Gregory in their own lectures on the institutes of medicine.[81]

Rush's concern to avoid the consequences of a strictly materialist or immaterialist position is evident in all his lectures on the mind. If, as Carlson argues, he materialized the metaphysical faculty psychology of Thomas Reid, he nevertheless constructed his history of the mind according to the unmistakably religious perspective provided by David Hartley in his *Observations upon the Frame, Duties and Expectations of Man*.[82] Like Hartley, Rush traced the workings of the human mind to the impressions of external objects or forces on the nerves. These impressions in the form of 'vibrations' were, however, part of God's design. He assured his students that the history of the human mind did not require that they choose between the many theories which, on the one hand, argued for the materiality of the mind, or, on the other, its immateriality. His theory required only:

> that we believe that we have a mind, that it is acted on by the body, that the body is acted on by the mind, and that in its present connection with the body it cannot acquire a single idea, nor

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> perform a single act, without the intervention of bodily impressions.[83]

In all his medical writings Rush emphasized the connection of body and mind and the importance of the new mental science to the physician. In the eye of the physician, man was always to be viewed as 'a single indivisible being, for so intimately united are his soul and body, that one cannot be moved without the other'.[84] As we will see, Rush's view of the coherence of mind and body played a key role in his medical theory and provided the physiological basis for his account of sympathy and its role in the moral life of medicine.

Rush was one of the earliest medical professors to expound the ideas and doctrines of Franz Joseph Gall, the German anatomist, physiologist and founder of what was later called the phrenology movement.[85] Gall's theory of the mind traced the attributes of personality to the functions and development of the brain. His lectures on phrenology were a popular success on the Continent, but in Vienna in 1802 they were suppressed for being subversive to religion. In 1807 Gall, with his student and successor Johan Gasper Spurzheim, left Vienna and settled in Paris.

As Jan Goldstein explains in her recent study of the French psychiatric profession in the nineteenth century, Gall's theory of the mind rested on the twin phrenological doctrines of 'organology' and 'cranioscopy'.

> The first doctrine held that all human mental characteristics, including both 'intellectual faculties' and 'feelings,' were innate and determined by the size of the relevant controlling organs of the brain, some 28 or 30 to 40 of which had been located. The second doctrine held that the size of the brain organs was discoverable by noting the shape of the skull and especially any protuberances, since the cranium was supposed to correspond closely to the contours of the brain it housed.[86]

In his lectures on the faculties or capacities of the mind Rush taught that Gall had ascertained the seats of many faculties and also:

> the seats and marks of the following moral and intellectual qualities. Parental and filial love, friendship, good nature, prudence, constancy, courage, loftiness, wit, vain glory, vanity, cupidity or theft, cunning, fighting, cruelty, memory for words, for numbers, for places, and talents for music, for the mechanic arts, for rhetoric, and for metaphysicks.[87]

Rush was, it appears, generally sympathetic to Gall's theory and he judged it to be at least 'probable'. He nevertheless brought to the

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attention of his students the findings of a recent unfavourable inquiry into the work of Gall and Spurzheim. This was the 1808 commission led by Georges Cuvier, the French naturalist. Other members of this group included Philippe Pinel and Jacques Tenon,[88] with whose work Rush was also familiar. He explained that Gall had suggested applications for his new science to both education and medicine and remarked that in:

> the former it may be useful; for if the brain by its growth fixes the moral and intellectual character in the bones of the skull, it will be difficult to change it after adult life. In childhood it may be done by exciting counter talents and passions to those we wish to weaken or destroy.[89]

Despite his misgivings, which he carefully explained, Rush concluded that Gall's ideas should 'not be considered as foreign to the history of the mind'. They were referred to throughout his lectures in order to illustrate 'how much and how often the mind sympathizes with the brain in all its moral and intellectual exercises'.[90] Like the followers of Gall, Rush postulated certain faculties which were innate or God-given. He did not, however, accept the doctrine of innate ideas. The corporealized faculties were, he emphasized, merely inherent *capacities*.[91] With Locke, he insisted that there was 'nothing in the understanding which was not first in the senses' and, like both Locke and Reid, he was inclined to stress the psychological unity and equality of all men rather than their inherent diversity. Each person, in this view, must discover his or her own God-given capacities and put them to good use. He believed that the physician-educator was particularly well qualified to act as guide in this task. Indeed, its importance to the overall moral life of the community transformed this knowledge and skill into a moral duty. Early education was for Rush the crucial factor in human development, and like the later phrenologists, he proposed systems of education that would shape the faculties of young minds to meet the needs of the new republic.

The Full Scope of Medicine

According to Rush's theory of mind, morality does not originate exclusively in experience. Each of us possesses a rudimentary moral faculty. This faculty, capacity, or organ is not, as Reid postulated, merely a metaphysical entity but a physical one activated by something like Hartley's system of vibrations. While the moral faculty is connected to the body so that the states of one affect the

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other, it is the body which is accessible to the physician and the key to treating the diseases of the moral faculty. Since Rush believed that all diseases of the mind were physiologically based, he warned it was as useless to attack the 'vices' or diseases of the mind with lectures on morality as it was to berate a person sick with fever. Mental 'vices' could be cured only by medical means.[92] Rush's phrenology, like the later phrenological movement, was thus an attempt to explain the moral and intellectual nature of humanity. It was designed to provide a theoretical rationale for programmes of social reform that relied on medicine, and it offered a reassuringly orthodox religious basis for an exploration of the mind.[93]

Rush, like many contemporary medical theorists, possessed a seemingly unshakeable confidence in the rise and progress of medicine. Moreover, he believed that the success of medicine and medical science in decreasing the number and mitigating the evils of once-incurable diseases should encourage physicians to search even harder for similar cures to alleviate the moral ills of mankind.[94] These triumphs of medicine, he suggested, were the outcome of the industry and ingenuity of natural science, and he saw no reason why this great enterprise should not likewise be applied to morality. He was:

> fully persuaded, that from the combined action of causes, which operate at once upon the reason, the moral faculty, the passions, the senses, the brain, the nerves, the blood and the heart, it is possible to produce such a change in the moral character of man, as shall raise him to a resemblance of angels – nay more, to the likeness of God himself.[95]

Hitherto the cultivation of the moral faculty had been the private concern of parents, schoolmasters and divines. But if the principles of a science of the mind are correct, should it not be the business of the legislator, the scientist and the physician to encourage the culture of morals and to undertake experiments for their improvement? Needless to say, Rush's answer to this question was affirmative and, in what follows, we will explore the implications of Rush's science of the mind or phrenology for the physician and his professional duties, particularly for the physician who would, hand in hand with the legislator and the scientist, help to create a healthy and happy society. The pursuit of happiness was, after all, a fundamental right of the new constitution, and happiness was, in Rush's eye, nothing less than the moral, intellectual and physical well-being of the individual in society.

In 1805 Rush gave an introductory lecture to his students which

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he titled, On the Utility of a Knowledge of the Faculties and Operations of the Human Mind, to a Physician.[96] In this work he explicated the uses of his mental science to the physician in his practice as well as 'to the physician in his role as a citizen and a man'. For Rush, as for his predecessors, knowledge of the faculties and operations of the mind opened to the physician a new set of duties with regard to his patient.

> It is calculated to teach him, that in feeling the pulse, inspecting the eyes and tongue, examining the state of the excretions, and afterwards prescribing according to their different conditions, he performs but half his duty in a sick room. To render his prescriptions successful, he should pry into the state of his patient's mind, and so regulate his conduct and conversation, as to aid the operation of his physical remedies.[97]

Rush thought that the physician should acquire the confidence of his patients and, through a greater understanding of their inner states, respond sympathetically to their particular fears, idiosyncrasies, and insecurities. By doing so, he would be better able to inspire his patients with hope for their own recovery and faith in their healer – but only in so far, Rush warned, 'as the truth would allow'. In an earlier lecture on the duties of a physician, Rush made some interesting observations about truth and the role of the human will in medicine, adding a new twist on the benevolent deception we met in Gregory and Percival:

> The extent of the influence of the will over the human body has not yet been fully ascertained. I reject the futile pretentions of Mr. Mesmer to the cure of diseases, by what he has absurdly called animal magnetism. But I am willing to derive the same advantages from his deceptions, which the chemists have derived from the delusions of the alchemists. The facts which he has established clearly prove the influence of the imagination, and will, upon diseases. Let us avail ourselves of the handle which those faculties of the mind present to us, in the strife between life and death. I have frequently prescribed remedies of doubtful efficacy in the critical stage of acute diseases, but never till I had worked up my patients into a confidence, bordering upon certainty, of their probably good effects. The success of this measure has much oftener answered, than disappointed my expectations; and while my patients have commended the vomit, the purge, or the blister, which was prescribed, I have been disposed to attribute their recovery to the vigorous concurrence of the *will* in the action of the medicine.[98]

The physician versed in Rush's phrenology had other arrows in his

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therapeutic quiver. He could apply his knowledge of the principles of the association of ideas to the removal of those false associations which were so painful to his patients. In a lecture on the subject Rush explained that these mental associations,

> like the bodily sympathies, are natural, and morbid; and as disease creates and multiplies sympathies that did not exist in health, so delirium, madness, and dreams create a thousand associations of ideas, all unrelated to each other, that do not occur in the healthy state of the mind.[99]

When Rush adapted the principles of his associationist psychology to the treatment of the insane, the act of prying into the patient's minds became the basis for what was referred to as 'the moral management of the insane'. This was to become the new orthodoxy of asylum medicine, or at least of those institutions under the governorship of the enlightened and humane gentleman-physician. Rush believed that in the condition of mania it was the velocity of over-heated ideas in the mind which caused their false association. Once they combined and laid down new 'tracks' – or neurological networks of the brain – such perverse associations blocked the orderly and natural succession of ideas in their train. In the condition of melancholia, for example, 'the heavy fixity of thoughts, hardened the mind into new tracks, derived not from nature, but from a fanciful connection of ideas by a morbid habit'.[100] According to Rush, the intellectually deranged could be divided into two groups: those who were partially insane and those who suffered from a general intellectual disorder. Partial insanity could take the form of either hypochondria or melancholia with symptoms of disturbed thinking or delusion. General intellectual derangement was found in cases of delirium or acute forms of mania. There were also diseases of the memory associated with ageing. Young persons who suffered from memory impairment were designated as fatuous or idiots.[101]

Apart from the regular bleeding and purging treatments, Rush believed that part of the business of the physician or asylum governor with his patients was

> to divert them from conversing upon all the subjects upon which they had been deranged, to tell them pleasant stories, to read them select passages from entertaining books, and to oblige them to read to him; to superintend their labours of body and mind; to preside at the table at which they take their meals, to protect them from rudeness and insults from their keepers, to walk and ride with them, to partake with them in their amusements, and to regulate

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> the nature and measure of their punishments.[102]

He argued that the physician should apply to the minds of his patients a kind of mechanical pressure which, acted as 'the pressure of a splint upon a broken limb'. This, he thought would bring the 'shattered and crooked' thoughts of his patients into 'their original and natural order'. In short, as he claimed in his lectures on the association of ideas,

> Judgement and reason ... consist in dissolving ... false and erroneous associations, and combining facts together in a natural and related order, so as to obtain true results from them.[103]

Moral management was, in this light, a stimulus to the operations of nature and thus doing for the patient what he would, if he could, do for himself. It did, however, lead to some bizarre methods for straightening crooked thoughts.

> If all the means that have been mentioned should prove ineffectual to establish a government over deranged patients, recourse should be had to certain modes of coercion, such as confinement by means of a strait waistcoat or of a chair contrived for the purpose.

If this failed, the 'manager' could resort to the following:

> Privation of their customary pleasant food. Pouring cold water under the coat sleeve, so that it may descend into the armpits and down the trunk of the body. The shower bath continued for fifteen or twenty minutes. If all these modes of punishment should fail of their intended effect, it will be proper to resort to the fear of death. By the proper application of these mild and terrifying modes of punishment, chains will seldom, and the whip never be required to govern mad people.[104]

The physician's knowledge of the science of the mind also created another related duty. Rush explained that the physician:

> in the course of his life, ... will be called upon to give his testimony and sometimes an opinion in courts of justice, upon the influence of diseases upon the mind. To enable him to do this with correctness, it will be necessary for him to know what constitutes derangement; and what degrees of it should exculpate injuries, set aside testimony, or invalidate the disposition of property by a will. Much yet remains to be known upon this subject; and from the ignorance and error of our laws upon it, there is reason to believe cruelty and injustice are often perpetrated by them.[105]

Rush's *Lecture on the Medical Jurisprudence of the Mind*, delivered in 1810, was, according to George Corner, one of the first general

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reviews of the subject in the English language. Physicians who believed that their duties were confined to the knowledge and cure of diseases had, Rush warned, a very limited view of medicine. He argued that the science of medicine had reached a stage in which it could be called upon to perform other valuable services to society such as 'the protection of property and life' and 'the detection of fraud and guilt'. That part of the science of medicine which qualified a physician to perform these duties was called medical jurisprudence.

Like Percival, whom he frequently cites, Rush believed that the absence of reason annulled man's social compact; it disenfranchised him, suspended his liberty, his ability to make bargains, to keep promises and to give testimony. He was no longer a free agent, the performer or receiver of personal and social duties, and thus no longer a legal or moral person. Rush agreed with Percival that physicians were the best judges of sanity and that insanity was often partial or temporary, 'something which came and went by degree, being subject to fits of intensification and remittance, and which – if caught early enough and well treated – was as amenable to relief or cure as any disease'.[106] The knowledge of the mind was a solid basis for physicians to encourage the development of new institutions for the humane treatment of the insane, including the criminally insane. Rush, like many Edinburgh-trained reformers, held that the cruel and punitive practices of Bedlam and Newgate were the aberrant legacies of an unenlightened past. As he urged,

> We erect splendid and commodious buildings to confine persons, whom intellectual derangement has rendered dangerous to society, and we employ our skill and humanity to relieve them; but with an unmerciful impatience, we consign persons, whom moral derangement has rendered mischievous, to the exterminating ax and halter.[107]

In the new institutions for the recovery of the mentally sick and criminally insane, 'expiatory confinement and labour, and the power of medicine' would restore these lost souls to reason and religion.[108]

Knowledge of the principles of mental science also played an important part in the development of educational programmes and here again the physician had a moral duty to contribute his particular expertise:

> The mental science will enable a physician to advise a natural and just order for conducting the studies of youth, founded upon the gradual evolution of its faculties. He will begin with those branches

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